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**WATER SUPPLY OUTLOOK
FOR
WASHINGTON**

U.S. GOVERNMENT PRINTING OFFICE
NATIONAL TECHNICAL INFORMATION SERVICE
APR 26 1967
CURRENT SERIAL RECORDS

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE,
and

DEPARTMENT of CONSERVATION STATE of WASHINGTON

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
MAR. 1, 1967

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season as they affect runoff will add to be an effective average. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data or reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

Listed below are water supply outlook reports based on Federal-State-Private Cooperative snow surveys. Those published by the Soil Conservation Service may be obtained from Soil Conservation Service, Room 507, Federal Building, 701 N. W. Glisan, Portland, Oregon 97209.

PUBLISHED BY SOIL CONSERVATION SERVICE

D. A. WILLIAMS, Administrator

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 507, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85205
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	P. O. Box 38, Boise, Idaho 83701
Montana	P. O. Box 855, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4001 Federal Building, Salt Lake City, Utah 84111
Washington	840 Bon Marche Bldg., Spokane, Washington 99206
Wyoming	P. O. Box 340, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



FEDERAL-STATE-COOPERATIVE
SNOW SURVEY AND WATER SUPPLY FORECASTS

For
WASHINGTON

Report Prepared
By

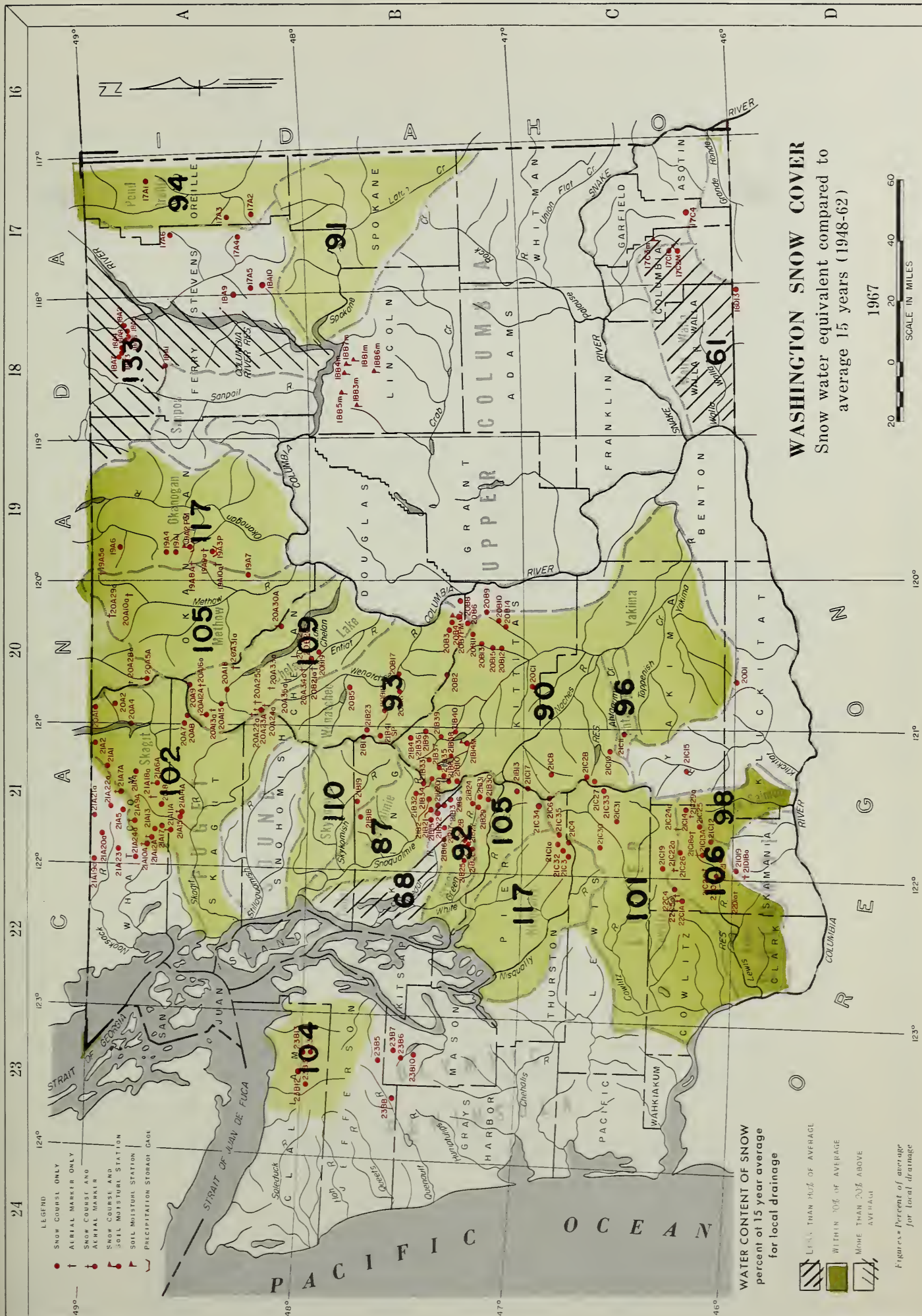
Robert T. Davis, Snow Survey Supervisor

Soil Conservation Service
840 Bon Marche Building
Spokane, Washington

Issued By

Orlo W. Krauter
State Conservationist
Soil Conservation Service
U. S. Department of Agriculture

H. W. Pollock, Supervisor
Division of Water Resources
Department of Conservation
State of Washington



INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE CAGES

NAME	NUMBER	SEC. TWP. RANGE	ELEV.
UPPER COLUMBIA DRAINAGE			
Pend Oreille River			
Boyer Mountain	17A2	7 31N 43E	5250
Bunchgrass Meadow	17A1	24 37N 44E	5000
Winchester Creek	17A3	30 33N 43E	2970
Kettle River			
Boulder Road	18A2	36 39N 36E	1450
Babin Creek	18A3	28 39N 35E	4070
Cabin Creek	18A4	5 33N 36E	3170
Goat Creek	18A4	26 39N 35E	3595
Snow Caps Creek	18A5	5 38N 36E	2150
Snow Caps Trail	18A6	5 38N 36E	2720
Summit G. S.	18A7	20 38N 35E	4600
Colville River			
Baird	17A6	19 36N 42E	3215
Carlson	18A9	34 32N 38E	2885
Chevelish	17A1	11 31N 41E	4925
Stranger Mountain	17A5	26 31N 38E	4990
Togo	18A0	6 29N 38E	3370
Sanpoil River			
Sherman Creek Pass	18A1	19 36N 35E	5350
Okanogan River			
Clark	19A8a	2 36N 23E	7000
Nuckamuck	19A9a	20 36N 24E	6750
Mutton Creek No. 1	19A1	30 37N 24E	5700
Mutton Creek No. 2	19A4	19 37N 24E	6000
Payasayen	20A28a	32 40N 18E	4300
Rusty Creek	19A3P	18 35N 24E	4500
Salmon Meadows	19A2P	33 37N 24E	4500
Starvation Mtn.	19A10a	15 35N 23E	6750
Touts Coulee	19A6	30 39N 25E	2845
Methow River			
Billy Goat Pass	20A0a	10 38N 20E	6000
Dollar Watch	20A29a	8 30N 20E	7000
Harts Pass	20A5A	7 37N 18E	6500
Horseshoe Basin	19A5a	15 40N 23E	7000
Loup Loup	19A7	36 34N 23E	4650
Chelan Lake Basin			
Cloudy Pass	20A22a	12 31N 15E	6500
Greenwood Flat	20A25a	3 31N 16E	3540
Little Meadows	20A24a	8 31N 16E	5275
Lyman Lake Flat	20A23a	18 31N 16E	5900
Park Creek Flat	20A13a	18 34N 16E	2220
Park Creek Ridge	20A12a	7 34N 16E	4600
Petersons	20A16a	3 34N 17E	3730
Rainy Pass	20A9	21 35N 17E	4780
Safety Harbor	20A30a	32 31N 20E	6300
War Creek Pass	20A31a	34 33N 18E	6500
Entiat River			
Brief	20B19	34 28N 19E	1600
Entiat Meadows	20A33a	28 31N 17E	4800
Entiat River Trail	20A34a	2 29N 17E	3150
Pope Ridge	20B20	22 29N 18E	4300
Pugh Ridge	20A32a	34 30N 18E	6400
Snow Bruahy	20A35a	21 30N 17E	3850
Tommy Creek	20B21a	10 28N 18E	5300
Wenatchee River			
Berne-Mill Creek	21B23	7 26N 15E	2925
Berne-Mill Creek (New)	21B41SP	13 26N 14E	3240
Blevett Pass No. 2	20B2	35 22N 17E	4270
Chivaukum G. S.	20B16	4 25N 17E	1810
Lake Menatchee	20B5	33 27N 17E	1970
Leavenworth R. S.	20B17	1 24N 17E	1127
Merritt	20B18	4 26N 16E	2140
Stevens Pass	21B1	14 26N 13E	4070
LOWER COLUMBIA DRAINAGE			
Asotin Creek			
Spruce Springs	17C4	9 8N 42E	5700
Mill Creek			
Couse	17C3m	2 9N 35E	3370
Homestead	17C1	11 9N 40E	4030
Martin Springs (Helmrs SM)	17C2M	23 9N 40E	4400
Walla Walla Diversion	18D13	22 6N 38E	2400
Klickitat River			
Status Pass	20D1	21 6N 17E	4030
West Fork Cabin	21C15	23 9N 12E	3000
White Salmon River			
Cultus Creek	21C12	35 7N 8E	4000
Lewis River			
Blue Lake	21C22a	19 9N 8E	4800
Bob's Trail	21C21	25 8N 7E	2200
Calamity Ridge	22D1a	8 5N 5E	2500
Council Pass	22C18a	24 9N 9E	4200
Snoqualmie River			
Bandera Air Strip	21B32	16 22N 10E	1635
Ollalie Meadows	21B2	19 22N 11E	3625
South Fork Tolt	21B18	26 26N 9E	1900
Skykomish River			
Lake Elizabeth	21B19	33 26N 10E	2900
Lewis River (continued)			
Divide Meadow	21C29a	21 9N 10E	5600
Grand Meadow	21C25	28 8N 9E	3500
Lone Pine Shelter	21C26	8 9N 7E	3800
Marble Mountain	21C5a	24 8N 5E	3200
New Muddy River	21C6	36 8N 6E	2000
Oldman Pass	21D19	22 8N 7E	3100
Plains of Abraham	22C1a	35 9N 5E	4400
Spencer Meadow	22C4	35 9N 6E	2100
Surprise Lakes	21C20a	16 8N 7E	3400
Table Mountain	21C13a	14 7N 8E	4250
Timbered Peak	21D18a	36 6N 6E	3000
Cowlitz River			
Cayuse Pass	21C6	15 16N 10E	5300
Mosquito Meadows	21C19	33 10N 7E	4100
Ohanapocosh	21C32	28 15N 10E	2200
Packwood Lake	21C31	21 13N 10E	2870
Pigtail Peak	21C33	11 13N 11E	5900
Potato Hill	21C14	36 10N 10E	4500
William Creek	21C30	3 13N 8E	3550
Nisqually River			
Ghost Forest	21C4	23 15N 8E	4550
Longmire	21C3	29 15N 8E	2760
Paradise Park (New)	21C35	13 15N 8E	5050
Stem Glade	21C1	13 15N 8E	5050
White River			
Corral Pass	21B13	30 18N 11E	6000
White River Campground	21C34	4 16N 9E	6000
Green River			
Airstrip	21B24	18 20N 11E	1800
Charley Creek	21B25	27 21N 8E	1200
Grass Mountain No. 1	21B26	21 20N 8E	4000
Grass Mountain No. 2	21B27	14 20N 8E	2900
Grass Mountain No. 3	21B28	12 20N 8E	2100
Lester Creek	21B29	36 20N 10E	3100
Sawmill Ridge	21B31	5 19N 11E	4700
Stampede Pass	21B10	25 21N 11E	3000
Twin Camp	21B30	18 19N 11E	4100
Cedar River			
City Cabin	21B3	10 21N 10E	2390
Mt. Gardner	21B21	30 22N 10E	3500
Mt. Gardner Aux.	21B22	31 22N 10E	2500
Mt. Lindsay	21B16	31 22N 9E	2500
Mt. Washington	21B15	8 22N 9E	3000
Rex River	21B17	11 21N 9E	2400
South Fork Cedar	21B6	24 21N 10E	3000
Tinkham Creek	21B20	1 21N 10E	3400
Skagit River			
Beaver Creek Trail	21A4	35 39N 12E	2200
Beaver Pass	21A1	9 39N 12E	3080
Devilla Park	20A4	34 38N 16E	5900
Freezout Creek Trail	20A1	14 40N 14E	3500
Freezout Meadows	20A2	8 40N 16E	5000
Lake Hozomeen	21A2	19 40N 14E	2600
Meadows Cabins	20A8	29 36N 14E	1900
Thunder Basin	20A7	15 35N 14E	4200
Baker River			
Dock Butte	21A11A	8 36N 8E	3800
Easy Pass	21A7A	19 35N 11E	5200
Jasper Pass	21A6A	17 35N 11E	5400
Marten Lake	21A9A	23 38N 8E	3600
Mount Blum	21A18a	27 38N 10E	5800
Rocky Creek	21A12a	20 37N 8E	3100
Schreibers Meadow	21A10a	18 37N 8E	4100
S. F. Thunder Creek	21A14a	20 36N 9E	2200
Sulphur Creek	21A13	22 37N 8E	1600
Three Mile Creek	21A15	18 36N 9E	1600
Watson Lakes	21A8	25 37N 9E	4500
Nooksack River			
Bald Mountain	21A19a	7 40N 7E	4400
Canyon	21A20a	20 40N 8E	5100
Glacier Creek	21A23	9-10 38N 7E	3700
Hanegan Pass	21A22a	8 39N 9E	5000
Mazama Park	21A24a	2 37N 7E	4500
Panorama	21A5	17 39N 9E	4300
Twin Lakes	21A21a	16 40N 9E	5200
OLYMPIC PENINSULA			
Dungeness River			
Deer Park	23B4	1 28N 5W	5200
Morse Creek			
Deer Park G. S.	23B13	1 28N 5W	4850
Morse Creek	23B12	25 29N 7W	5425
Elwha River			
Hurricane	23B3	36 29N 7W	4500
Skokomish River			
Black and White	23B7	17 24N 5W	4200
Black and White Lakes	23B6	16 24N 5W	4700
Four Stream	23B10	1 23N 6W	3000
Home Sweet Home	23B5	28 25N 5W	5200
Sundown Pass	23B8	25 24N 7W	3900
LEGEND			
NUMBERING SYSTEM EXAMPLE			
21A7	SNOW COURSE ONLY		
21A7A	AERIAL MARKER ONLY		
21A7A	SNOW COURSE AND AERIAL MARKER		
21A7M	SNOW COURSE AND SOIL MOISTURE STATION		
21A7M	SOIL MOISTURE STATION		
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE		
21A7P	PRECIPITATION STORAGE GAGE		
21A7SP	SNOW PILLON		

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE					
Pend Oreille River					
Boyer Mountain	17A1	7	31N	43E	5250
Bunchgrass Meadow	17A2	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	30N	36E	1450
Butte Creek	18A3	28	30N	35E	4070
Cabin Creek	18A4	5	38N	36E	3170
Gout Creek	18A5	26	30N	35E	3190
Snow Caps Trail	18A6	3	38N	36E	2150
Snow Caps Trail	18A7	5	38N	36E	2720
Summit U. S.	18A7	20	30N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chevelah	17A5	11	32N	41E	4925
Stranger Mountain	17A6	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sonpolt River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Nuckamuck	19A9a	20	36N	24E	6750
Nutton Creek No. 1	19A1	30	37N	24E	5700
Nutton Creek No. 2	19A2	19	37N	24E	6000
Paysan	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salm Meadows	19A2P	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A54	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelon Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	5540
Little Meadows	20A24a	8	31N	16E	5275
Lynn Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12a	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30a	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Pope Ridge	20B20	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B13P	13	26N	14E	3240
Blavett Pass No. 2	20B2	35	22N	17E	4270
Chitaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3000
Marble Mountain	22C5a	24	8N	5E	3200
May Muddy River	22C6	36	8N	6E	2000
Oldman Pass	22D19	23	9N	5E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C2	29	8N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13a	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Onasque Meadows	21C19	33	10N	7E	4100
Onasque	21C32	28	15N	10E	2800
Packwood Lake	21C31	21	13N	10E	2970
Pigtail Peak	21C33	11	13N	11E	5800
Potato Hill	21C14	36	10N	10E	4500
Willamette Creek	21C30	3	13N	8E	3250
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	5050
Stem Glade	21C1	13	13N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Grass Mountain No. 1	21B26	21	20N	8E	4000
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Sawmill Ridge	21B31	5	19N	11E	4700
Stamper Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rever River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Bandera Air Strip	21B32	16	22N	10E	1635
Ollalie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Devils Park	20A1	34	32N	16E	5900
Freezeout Creek Trail	20A11	14	40N	16E	3500
Freezeout Meadows	20A2	18	40N	16E	5000
Lake Hozomeen	21A2	19	40N	16E	2600
Meadows Cabins	20A8	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Dock Butte	21A11a	8	36N	8E	3800
Easy Pass	21A7a	19	39N	11E	5200
Jasper Pass	21A6a	17	32N	11E	5100
Marten Lake	21A7a	23	32N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12a	20	37N	8E	2100
Schreibers Meadow	21A10a	18	37N	8E	3400
S. F. Thunder Creek	21A14a	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nookstock River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20a	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Hanegan Pass	21A22a	8	39N	9E	5000
Mazama Park	21A24a	2	37N	7E	4500
Panorama	21A5	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200
OLYMPIC PENINSULA					
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Deer Park G. S.	23B13	1	28N	5W	4850
Morse Creek	23B12	25	29N	7W	5425
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
NUMBERING SYSTEM EXAMPLE					
21A7	SNOW COURSE ONLY				
21A7A	AERIAL MARKER ONLY				
21A7M	SNOW COURSE AND AERIAL MARKER				
21A7N	SNOW COURSE AND SOIL MOISTURE STATION				
21A7P	SOIL MOISTURE STATION				
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE				
21A7SP	PRECIPITATION STORAGE GAGE				
21A7SP	SNOW PILLAR				

WATER SUPPLY OUTLOOK

State of Washington

March 1, 1967

* The water supply outlook for irrigation and power in the Columbia *
* portion in Washington and tributary streams can still be consider- *
* ed very good for this time of year. Snow surveys made near the *
* first of March indicate a snowpack that is generally close to aver- *
* age. Minor exceptions to this are the Kettle River at 33% above *
* normal, Mill Creek 39% below normal and the Cedar River 32% below *
* normal. The continuation of above normal temperatures and below *
* normal precipitation was felt throughout the whole State with all *
* drainage divisions reporting sub-normal precipitation. Runoff *
* was generally below normal with the exception of the Palouse and *
* Walla Walla Rivers which experienced near record low flows during *
* the month of February. The snowpack in the State as was reported *
* last month is good to excellent above the 4500 foot elevation and *
* poor to nonexistent below this elevation. Since most of the snow *
* courses are to be found in this higher elevation belt the snow- *
* pack indicates normal or above normal snow cover. Water from this *
* high elevation snowpack will be the sustaining factor during the *
* latter part of the irrigation season. Water from the lower ele- *
* vation snowpacks are generally considered "flashy" and unreliable *
* for water supply purposes. The soil mantles continue to be wet up *
* over those reported last month mainly because the soil moisture *
* stations are in the lower elevations. Most reservoirs have less *
* than normal amounts of water in storage for March 1 but with the *
* adequate forecasted runoff they should comfortably fill during *
* the runoff season. Comparing March 1 results with last month, *
* the overall situation is about the same and with normal condi- *
* tions, subsequent to this date, no shortages of water should *
* occur. *

SNOW COVER

If we had a complete picture of the snow cover as it occurred throughout the Northwest we would see that in the northern portion of the basin in British Columbia record snowpacks were measured at all high elevation snow courses and above normal snowpacks at the rest. As a person looks further to the south the higher elevation snowpacks continue to be good--not the records of Canada but still above normal and the lower elevation snowpacks completely disappear. This condition continues through Washington and on into Oregon with a lessening of the snowpack at higher elevations and drier soils at the lower elevations. The individual stations in Washington indicate the snow cover to be from 17% above normal to 39% below. Most of the watersheds have normal or near normal snow covers as of March 1. The Puget Sound drainage has an enormous variance from the 17% above normal to 32% below. The Olympic Peninsula courses indicate near normal conditions in all areas.

RESERVOIRS

With the exception of Ross and Diablo reservoirs in the Puget Sound drainage and Banks Lake in the Columbia Basin, all reservoirs, both power and irrigation, have less water in storage than normal for this time of year. It is assumed that the lack of February precipitation has accounted for this decided drop in reservoir storage over that which was reported last month. The major irrigation reservoirs in the Yakima basin have 704,600 acre-feet of storage as of March 1 compared to 531,800 for last year at this time. Inflow to these reservoirs was over three times as great this past month as occurred last year at this time. These reservoirs should all completely fill with the spring runoff, even Rimrock Lake which sometimes falls short of the expected.

PRECIPITATION

All drainage divisions reported by the United States Weather Bureau for the month of February showed far less than normal rainfall. December and January precipitation for these same drainage divisions was generally above normal. The excessive departures on the minus side this past month have completely eliminated the surplus total for the northeast, southeast and central portions of the State. The winter total for the other drainage areas still is on the positive side but has been depleted by the lack of February precipitation.

SOIL MOISTURE

In the central portion of the State the soil mantle is wetted to well above that which occurred in 1965. In the Okanogan drainage the situation is similar to last year but not as good as the year before. The Yakima area is similar to both 1966 and 1965. In the southeastern portion soils are wetted to well above last year at this time but still well below that which occurred in 1965. The soil moisture stations in Oregon, adjacent to Washington, indicate the soil mantle to be 82% of capacity but only 77% of last year. The lack of precipitation and high temperatures have accounted for most of this increase where noted. Snow that melts first enters the soil mantle before it can run off.

STREAMFLOW

During the month of February near record low flows occurred in the Walla Walla River and the Palouse River in southeastern Washington. Over the remaining portion of the State river flows were normal to slightly below. Forecasts of streamflows indicate the expected runoff from the stations in Washington and tributary areas will vary from 25% above normal to 27% below normal. The flow of the main stem of the Columbia River as measured at The Dalles has decreased slightly over that which was reported last month due to lack of increased snow in the Snake River portion of the basin as well as the lack of precipitation over the basin as a whole. Numerical forecasts can be found elsewhere in this report.

STREAMFLOW FORECASTS - MARCH 1967

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts.

Basin, Stream and Station	Forecast Runoff 1967	Seasonal Streamflow in Thousands of Acre-Feet					
		%	Fore- cast Period	Measured Runoff			15-Yr. Average 1948-62
				15-Yr. Avg.	1966	1965	
<u>COLUMBIA BASIN</u>							
<u>Columbia River System</u>							
Columbia River							
at Birchbank <u>1/</u>	54000	120	Apr-Sep	45563	43275	46796	45027
	42650	120	Apr-Jul	35808	32967	36491	35517
	30000	120	Apr-Jun	24863	23220	23751	24982
Columbia River							
at Grand Coulee <u>1/</u>	81000	115	Apr-Sep	62404	69626	69628	70253
	67800	115	Apr-Jul	51602	56879	57669	58921
	52300	115	Apr-Jun	38739	44465	42008	45486
Columbia River							
bl. Rock Island Dam <u>1/</u>	87400	113	Apr-Sep	67973	74986	78366	77313
	73400	113	Apr-Jul	56574	61759	64710	64967
	57200	114	Apr-Jun	42757	48045	46870	50178
Columbia River							
at The Dalles, Ore. <u>1/</u>	118000	109	Apr-Sep	86923	112902	109017	108696
	102000	110	Apr-Jul	72261	95012	92143	92527
	82500	111	Apr-Jun	56465	76940	70739	74281
<u>Pend Oreille River System</u>							
Pend Oreille River							
bl. Box Canyon	18600	110	Apr-Sep		19515	17542	16905
	16800	108	Apr-Jul		17601	15990	15571
	14500	108	Apr-Jun		15299	13518	13399
<u>Kettle River System</u>							
Kettle River nr.	2080	101	Apr-Sep		1852	2022	2051
Laurier	1980	101	Apr-Jul		1759	1796	1952
	1820	103	Apr-Jun		1657	1580	1774

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Streamflow Forecasts - March 1967 (Cont)

Basin, Stream and Station	Forecast Runoff 1967	Seasonal Streamflow in Thousands of Acre-Feet					
		%	Fore-	Measured Runoff Average			
		15-Yr. Avg.	cast Period	1966	1965	1964	1948-62
<u>Kettle River System (Cont)</u>							
Colville River							
at Kettle Falls	145	78	Apr-Sep		166	92	187
	135	78	Apr-Jul		154	82	172
	125	79	Apr-Jun		146	77	159
<u>Spokane River System *</u>							
Spokane River							
at Post Falls, Ida. <u>2/</u>	3200	94	Apr-Sep		3345	3836	3413
	3100	93	Apr-Jul		3209	3675	3316
	2980	94	Apr-Jun		3066	3466	3158
<u>Okanogan River System **</u>							
Similkameen River							
nr. Nighthawk	1540	92	Apr-Sep		1356	1872	1665
	1440	93	Apr-Jul		1260	1715	1550
	1270	95	Apr-Jun		1114	1340	1331
Okanogan River							
at Oroville <u>3/</u>	620	125	Apr-Sep		447	373	495
	600	122	Apr-Jul		441	329	493
	575	122	Apr-Jun		439	299	472
Okanogan River							
nr. Tonasket	1920	98	Apr-Sep		1614	2058	1957
	1750	99	Apr-Jul		1474	1823	1771
	1500	100	Apr-Jun		1300	1420	1502
<u>Methow River System**</u>							
Methow River							
nr. Pateros	1060	90	Apr-Sep		817	949	1178
	980	89	Apr-Jul		740	884	1096
	850	90	Apr-Jun		639	729	940
<u>Chelan River System</u>							
Chelan River							
at Chelan <u>4/</u>	1310	97	Apr-Sep		1149	1293	1352
	1200	100	Apr-Jul		1012	1141	1202
	950	100	Apr-Jun		792	821	946

* Forecasts made by Morlan W. Nelson and J. Alden Wilson, Soil Conservation Service, Boise, Idaho.

** These forecasts are based in part upon base flow data especially prepared and furnished for this purpose by the U. S. Geological Survey.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage and diversions.

4/ Observed flow corrected for storage in Lake Chelan.

Streamflow Forecasts - March 1967 (Cont)

Basin, Stream and Station	Forecast Runoff 1967	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-Yr Avg.	Fore- cast Period	Measured Runoff			15-Yr. Average 1948-62
				1966	1965	1964	
<u>Chelan River System (Cont)</u>							
Stehekin River							
at Stehekin	915	97	Apr-Sep		826	949	943
	790	98	Apr-Jul		701	815	810
	620	100	Apr-Jun		536	578	617
<u>Wenatchee River System</u>							
Wenatchee River							
at Plain	1370	98	Apr-Sep		1308	1469	1397
	1250	99	Apr-Jul		1189	1295	1267
	1020	101	Apr-Jun		975	924	1013
Wenatchee River							
at Peshastin	1870	97	Apr-Sep		1747	1951	1924
	1720	98	Apr-Jul		1604	1735	1758
	1410	100	Apr-Jun		1328	1252	1415
Stemilt Basin							
nr. Wenatchee	115*	--	May-Sep		132*	146*	--
<u>Yakima River System</u>							
Yakima River							
nr. Martin <u>5/</u>	147	93	Apr-Sep		133	203	158
	137	94	Apr-Jul		126	182	146
	120	95	Apr-Jun		115	138	126
Yakima River							
at Cle Elum <u>6/</u>	950	91	Apr-Sep		921	1254	1046
	880	91	Apr-Jul		851	1127	962
	780	94	Apr-Jun		756	888	834
Yakima River							
nr. Parker <u>7/</u>	1660	82	Apr-Sep		1653	2005	2016
	1650	83	Apr-Jul		1643	1917	1988
	1550	85	Apr-Jun		1571	1606	1826
Kachess River							
nr. Easton <u>8/</u>	125	89	Apr-Sep		117	176	141
	119	89	Apr-Jul		112	161	134
	106	90	Apr-Jun		104	128	118

* Thousands of Miners' Inches.

5/ Observed flow corrected for storage in Lake Keechelus.6/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal.7/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.8/ Observed flow corrected for storage in Lake Kachess.

Streamflow Forecasts - March 1967 (Cont)

Basin, Stream and Station	Forecast Runoff 1967	Seasonal Streamflow in Thousands of Acre-Feet				
		% 15-Yr. Avg.	Fore- cast Period	Measured Runoff		
				1966	1965	1964
						15-Yr. Average 1948-62
<u>Yakima River System (Cont)</u>						
<u>Cle Elum River</u>						
nr. Roslyn <u>9/</u>	480	91	Apr-Sep	448	577	525
	445	92	Apr-Jul	418	520	483
	380	93	Apr-Jun	367	401	407
<u>Bumping River</u>						
nr. Nile <u>10/</u>	140	86	Apr-Sep	141	167	163
	130	86	Apr-Jul	131	150	151
	110	89	Apr-Jun	115	109	124
<u>American River</u>						
nr. Nile	115	82	Apr-Sep	121	131	140
	107	82	Apr-Jul	113	120	130
	92	85	Apr-Jun	100	90	108
<u>Tieton River</u>						
at Tieton Dam <u>11/</u>	240	86	Apr-Sep	236	235	280
	207	86	Apr-Jul	205	201	241
	168	87	Apr-Jun	175	146	193
<u>Naches River</u>						
nr Naches <u>12/</u>	830	84	Apr-Sep	888	914	991
	760	84	Apr-Jul	814	818	908
	660	85	Apr-Jun	719	642	776
<u>Ahtanum Creeks</u>						
nr. Tampico <u>13/</u>	40	73	Apr-Sep	44	35	55
	36	71	Apr-Jul	40	31	51
	33	73	Apr-Jun	36	26	45
<u>Lower Columbia River System</u>						
<u>Mill Creek</u>						
nr. Walla Walla	29	85	Apr-Sep	27	34	34
	25	83	Apr-Jul	23	31	30
	22	81	Apr-Jun	21	28	27
<u>Lewis River</u>						
at Ariel <u>14/</u>	1581	95	Mar-Jul	1191	1201	1663
	1380	95	Apr-Sep	1057	1451	1450
	1220	95	Apr-Jul	940	1233	1286
	1090	96	Apr-Jun	854	1053	1140

9/ Observed flow corrected for storage in Lake Cle Elum.

10/ Observed flow corrected for storage in Bumping Lake.

11/ Observed flow corrected for storage in Rimrock Lake.

12/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.

13/ Observed flow of North and South Forks (combined).

14/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.

Streamflow Forecasts - March 1967 (Cont.)

Basin, Stream and Station	Forecast Runoff 1967	Seasonal Streamflow in Thousands of Acre-Feet				
		% 15-Yr Avg.	Fore- cast Period	Measured Runoff		15-Yr. Average
				1966	1965	1964 1948-62

Lower Columbia River System (Cont)

Cowlitz River						
at Castle Rock <u>15/</u>	2840	96	Apr-Sep	2174	3330	2954
	2520	96	Apr-Jul	1901	2884	2620
	2140	95	Apr-Jun	1650	2338	2244

OLYMPIC PENINSULA

Dungeness River System

Dungeness River						
nr. Sequim	178	100	Apr-Sep	130	159	178
	148	101	Apr-Jul	108	132	147
	113	102	Apr-Jun	84	95	111

15/ Observed flow corrected for storage in Mayfield Reservoir

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about March 1, 1967 as per cent of the same date in 1966 and 1965 and average of record.

Tributary Basin	No. of Courses Average	Years of Record	1967 Snow Water Expressed as per cent of		
			1966	1965	1948-62
<u>UPPER COLUMBIA BASIN</u>					
Pend Oreille	8 - 13	3 - 30	121	96	94*
Kettle	4 - 15	4 - 29	109	76	133*
Colville	5	9	55	42	--
Spokane	5 - 14	3 - 30	119	94	91*
Okanogan	23 - 33	2 - 32	124	110	117*
Methow	5 - 10	6 - 24	121	117	105*
Chelan	6 - 9	3 - 17	119	123	109*
Entiat	1 - 6	2 - 7	96	26	--
Wenatchee	6 - 14	6 - 22	80	77	93*
Yakima	13 - 22	6 - 47	88	75	90*
Ahtanum	2	20 - 22	87	85	96*
<u>LOWER COLUMBIA</u>					
Mill Creek	3	12 - 13	43	62	61*
Klickitat	1	10	30	39	--
White Salmon	1	21	96	81	98*
Lewis	6 - 16	4 - 22	78	84	106*
Cowlitz	5 - 10	3 - 23	97	86	101*
<u>PUGET SOUND</u>					
Nisqually	3 - 4	2 - 10	131	103	117*
White	2 - 4	2 - 22	121	107	105*
Green	1 - 9	5 - 21	82	75	92*
Cedar	5 - 6	8 - 16	48	49	68*
Snoqualmie	1 - 3	7 - 22	84	77	87*
Skykomish	1 - 2	8 - 22	101	86	110*
Skagit	14	10 - 20	114	104	102*
Nooksack	1	10	123	140	--
<u>OLYMPIC PENINSULA</u>					
Skokomish	5	3 - 8	104	123	--
Elwha	1	13	129	124	108*
Dungeness	1	18	107	124	100*

* Records of less than 15 years used in computation of average

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM	RESERVOIR	USABLE <u>1/</u> CAPACITY	Measured (March 1)			Normal*
			1967	1966	1965	
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	121.0	48.3	175.1	167.2
Columbia	Franklin D. Roosevelt Lake	5232.0	3193.3	1730.0	3038.0	3449.8
Columbia	Banks Lake <u>2/</u>	761.8	761.8	506.1	447.6	508.0
Okanogan	Conconully Reservoir	13.0	3.7	0	5.0	7.5
Okanogan	Salmon Lake	10.5	3.2	7.7	8.4	8.9
Chelan	Lake Chelan	676.1	178.0	171.9	286.4	259.6
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	119.2	81.9	106.8	92.2
Kachess	Kachess Lake	239.0	198.3	167.9	189.0	178.0
Cle Elum	Lake Cle Elum	436.9	271.1	194.4	346.2	260.6
Bumping	Bumping Lake	33.7	4.8	3.1	7.7	11.7
Tieton	Rimrock Lake	198.0	111.2	84.5	150.8	121.9
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir <u>2/</u>	1202.9	1021.2	656.6	885.6	643.3
Skagit	Diablo Reservoir	90.6	83.4	86.4	83.5	82.8
Skagit	Gorge Reservoir	9.8	8.4	8.0	8.3	--

1/ Based on Active Storage

2/ Less than 15-year record in period 1948-62

* 15-year average 1948-62

SOIL MOISTURE - MARCH

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches) : Total : Capacity :	Soil Moisture Content (Inches) as of March 1		
					1967	1966	1965
<u>CRAB CREEK</u>							
Creston-Kunz	18B1m	2440	48	13.6	10.5	7.1	8.2
Jack Woods	18B3m	2600	48	13.6	9.8	7.8	7.3
Krause	18B4m	2440	48	13.6	9.0	7.5	8.6
Sheffels	18B5m	2360	48	13.6	8.2	6.2	6.7
Sherman	18B7m	18B7m	48	13.6	6.6	--	--
Wheatridge	18B6m	2200	48	13.6	9.3	7.4	7.9
<u>OKANOGAN</u>							
** Trout Creek	3-M	3600	48	7.3	3.4*	3.3*	4.2
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	4.9	5.2	4.9
Lake Cle Elum	21B14M	2200	48	12.8	9.1	9.0	9.2
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	8.8	7.5	10.6
Helmers	17C2M	4400	48	12.0	10.8	7.9	12.2
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	10.5	8.0	8.4
*February 1 measurement							
** Salmon Meadows	19A2M	4500	48	5.4	3.6	2.1	--

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches) : Total : Capacity :	Soil Moisture Content (Inches) as of Oct. 1 1966 1965 1964		
<u>CRAB CREEK</u>							
Creston-Kunz	18B1m	2440	48	13.6	5.0	4.9	5.4
Jack Woods	18B3m	2600	48	13.6	4.3	5.0	4.4
Krause	18B4m	2440	48	13.6	5.1	5.8	5.9
Sheffels	18B5m	2360	48	13.6	3.8	4.0	3.7
Sherman	18B7m	2440	48	13.6	3.7	--	--
Wheatridge	18B6m	2200	48	13.6	4.1	4.2	4.1
<u>OKANOGAN</u>							
**Trout Creek	3-M	3600	48	7.3	3.8	4.1	4.9
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	2.4	1.9	4.4
Lake Cle Elum	21B14M	2200	48	12.8	6.4	6.9	8.5
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	5.7	6.0	5.6
Helmers	17C2M	4400	48	12.0	6.7	6.2	6.0
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	5.7	6.2	5.3
**Salmon Meadows	19A2M	4500	48	5.4	3.0	1.9	--

PRECIPITATION ^{1/}

Division Averages and Departures

DRAINAGE DIVISIONS	FALL		WINTER	
	Sept-Oct-Nov. 1966 ^{2/}	Departure	Dec. 1966	Jan-Feb. 1967 ^{2/}
	Average		Average	Departure
Columbia in Canada	6.80	+ 0.53	9.73	+ 0.94
Pend Oreille - Spokane	7.75	- 1.19	12.63	+ 0.44
Northeastern Washington	5.29	- 0.02	7.10	- 0.18
Southeastern Washington	5.33	- 0.54	7.59	- 0.40
Central Washington	8.93	- 2.94	18.43	- 0.27
North Central Washington	3.55	+ 0.52	4.08	+ 2.27
Northwest Slope Cascades	20.24	- 3.80	42.10	+ 8.65
Southwest Slope Cascades	15.38	- 2.71	29.55	+ 3.42

Northeastern Washington - Lower Spokane, Colville, Sanpoil and lower Kettle drainages.

Southeastern Washington - Touchet, Tucannon and Palouse drainages.

Central Washington - Yakima, Wenatchee and Chelan drainages.

Northwest Slope Cascades - Puget Sound drainages.

North Central Washington - Methow and Okanogan drainages

Southwest Slope Cascades - Lower Columbia drainages.

^{1/} - Preliminary analysis by U. S. Weather Bureau from data furnished by Meteorological Services of Canada and U. S. Weather Bureau.

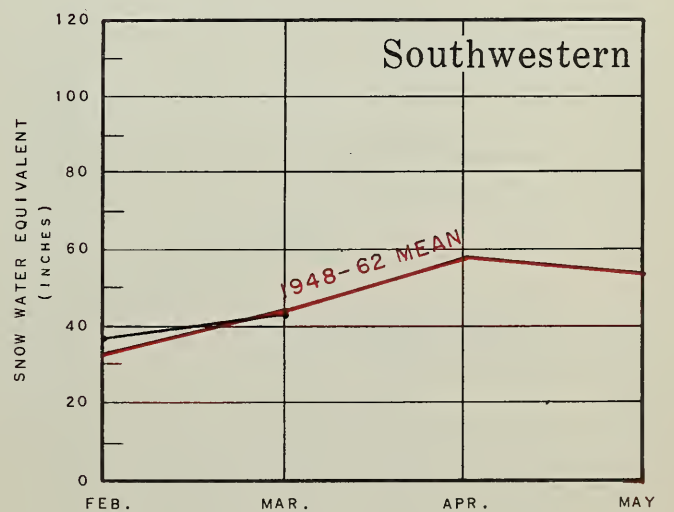
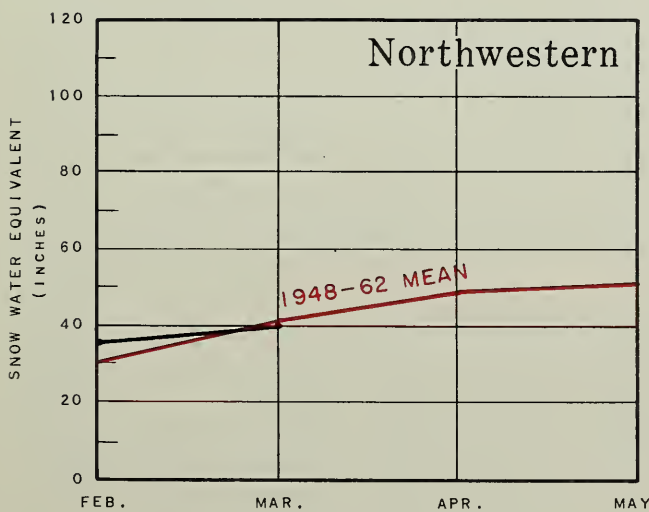
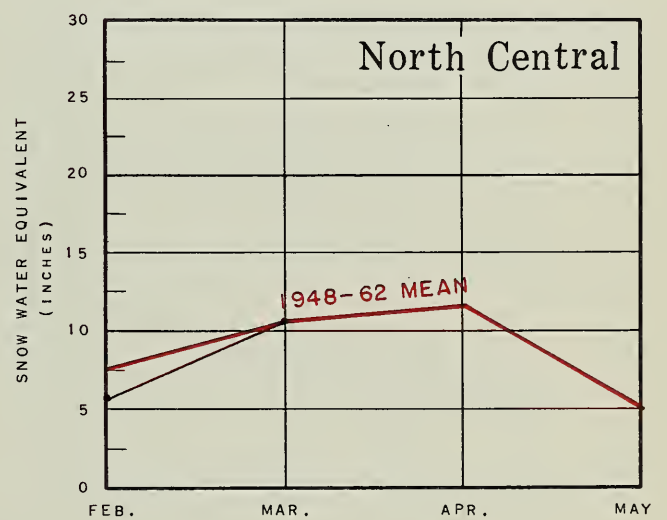
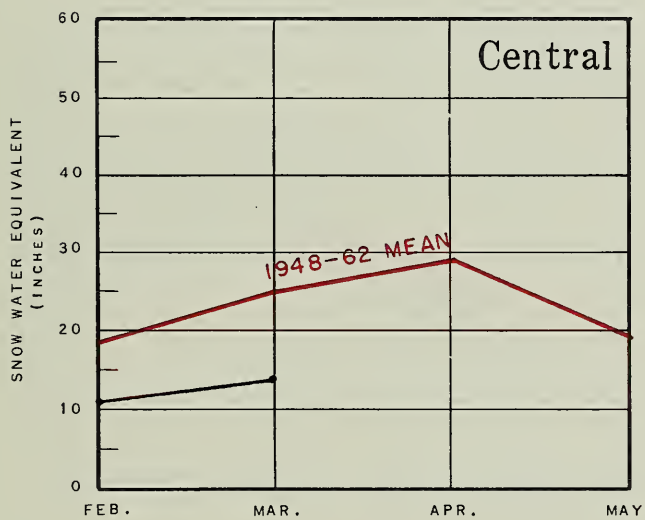
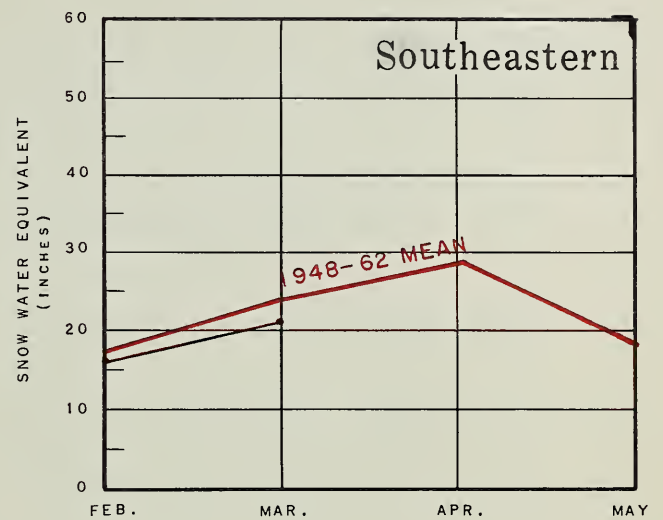
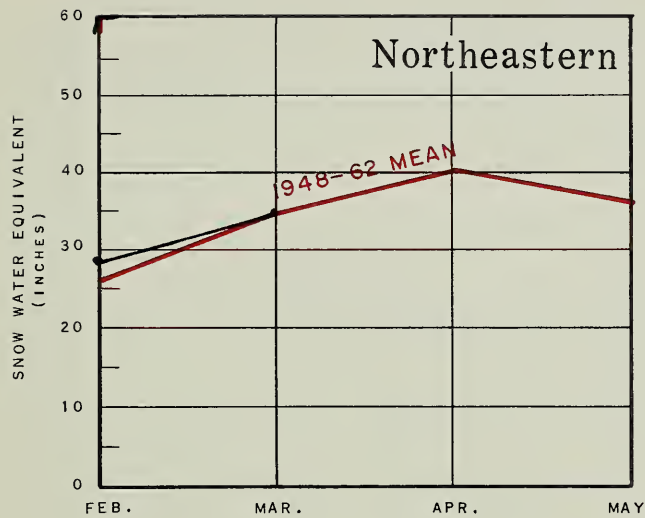
^{2/} - Departure from 15-year (1948-62) drainage division average.

Note - Precipitation shown in inches.

WASHINGTON SNOW COVER

1967

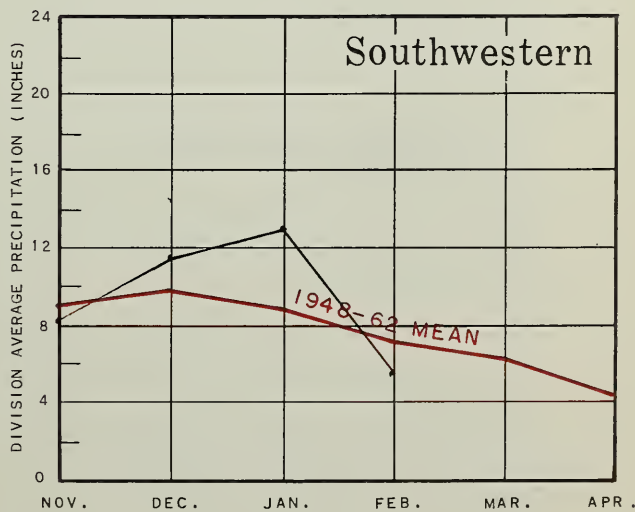
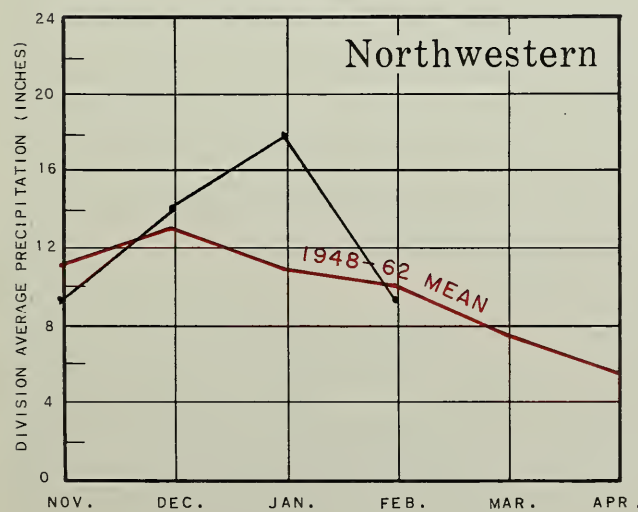
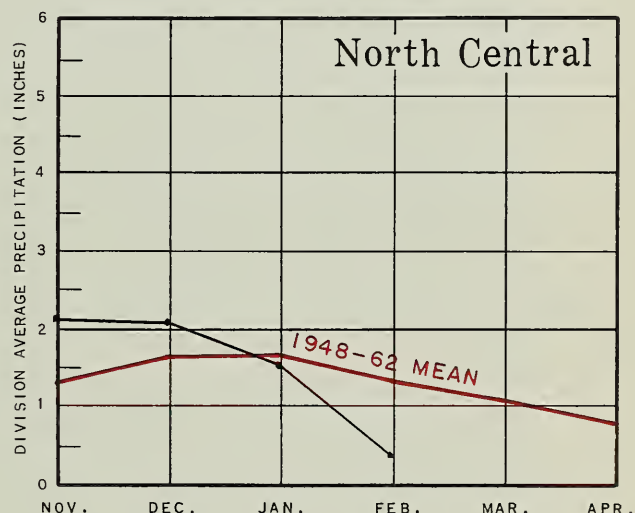
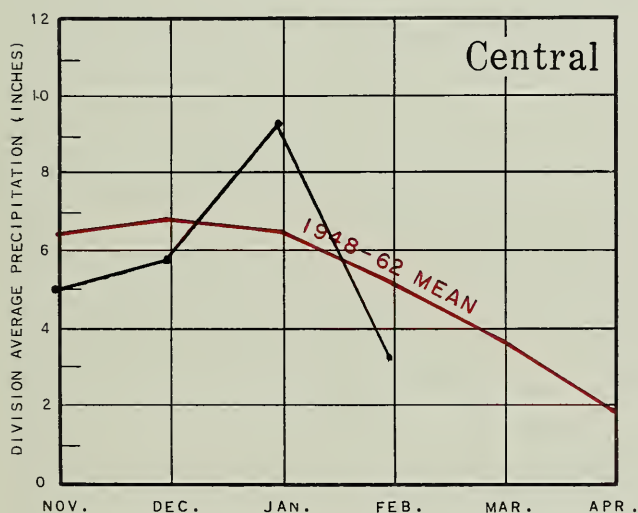
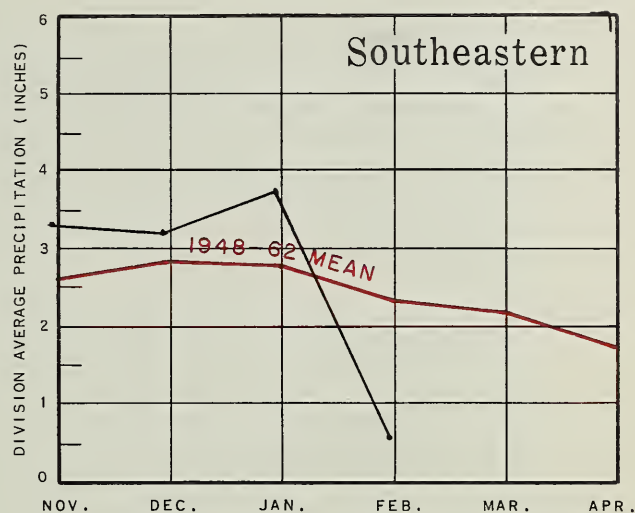
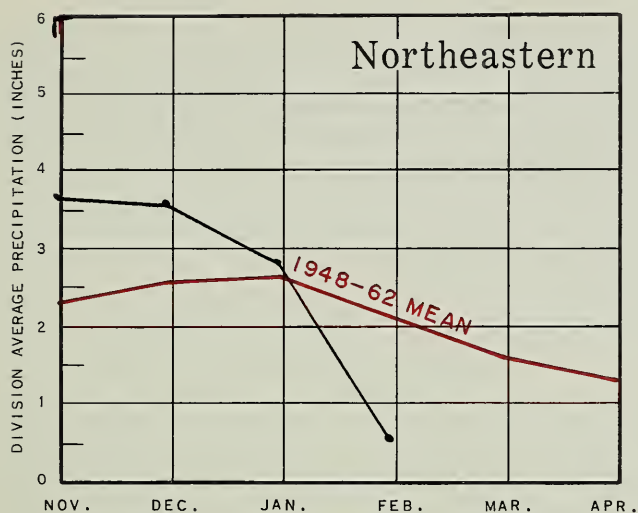
DRAINAGE AREAS



WASHINGTON VALLEY PRECIPITATION

1966 - 1967

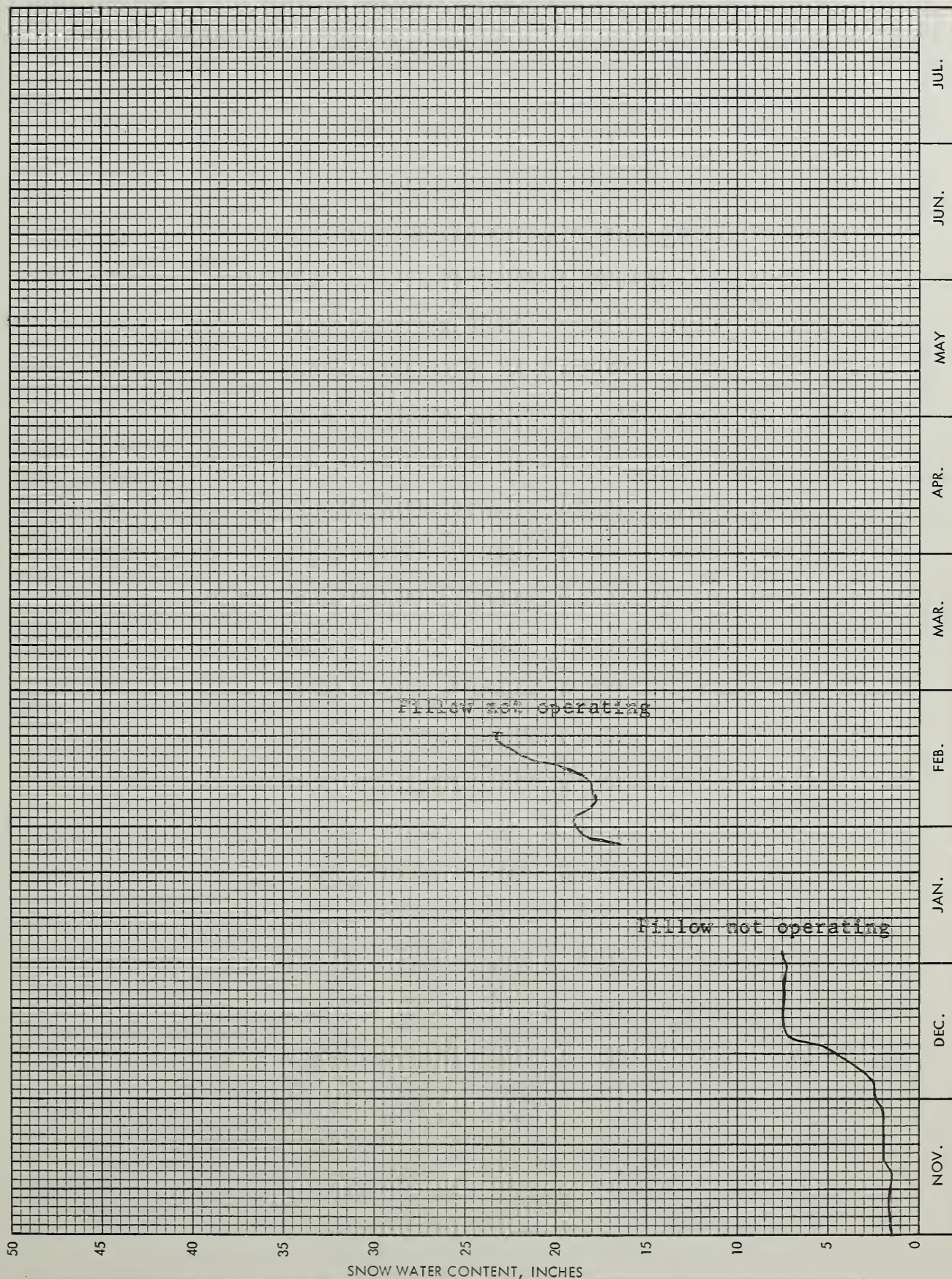
DRAINAGE AREAS



SNOW PILLOW DATA

Berne-Mill Creek

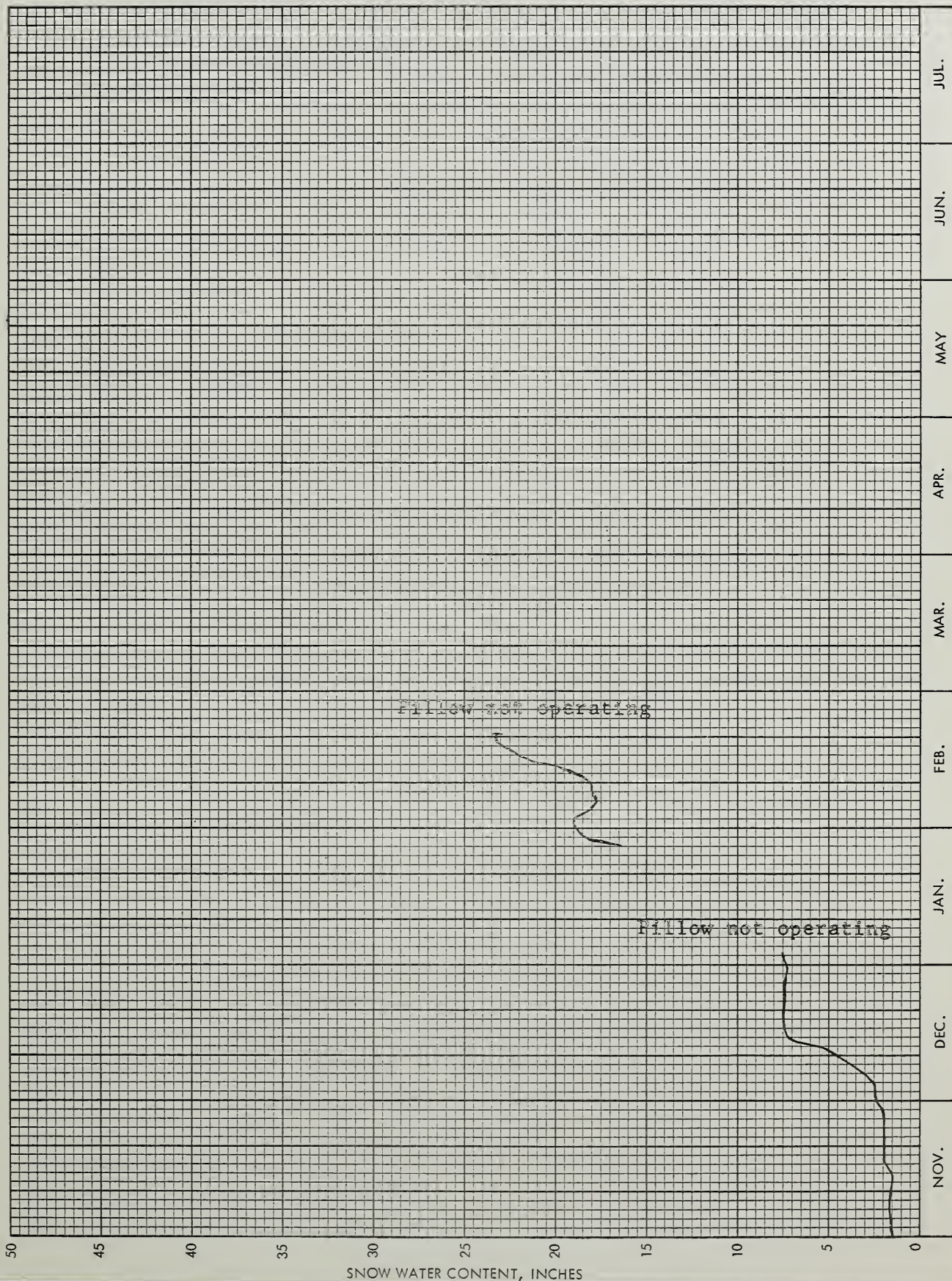
Sec. 13 T. 26N R. 14E No. 21B41SP Drainage: Wenatchee
 Lat. 47° 46' Long. 121° 01' Elev. 3170



SNOW PILLOW DATA

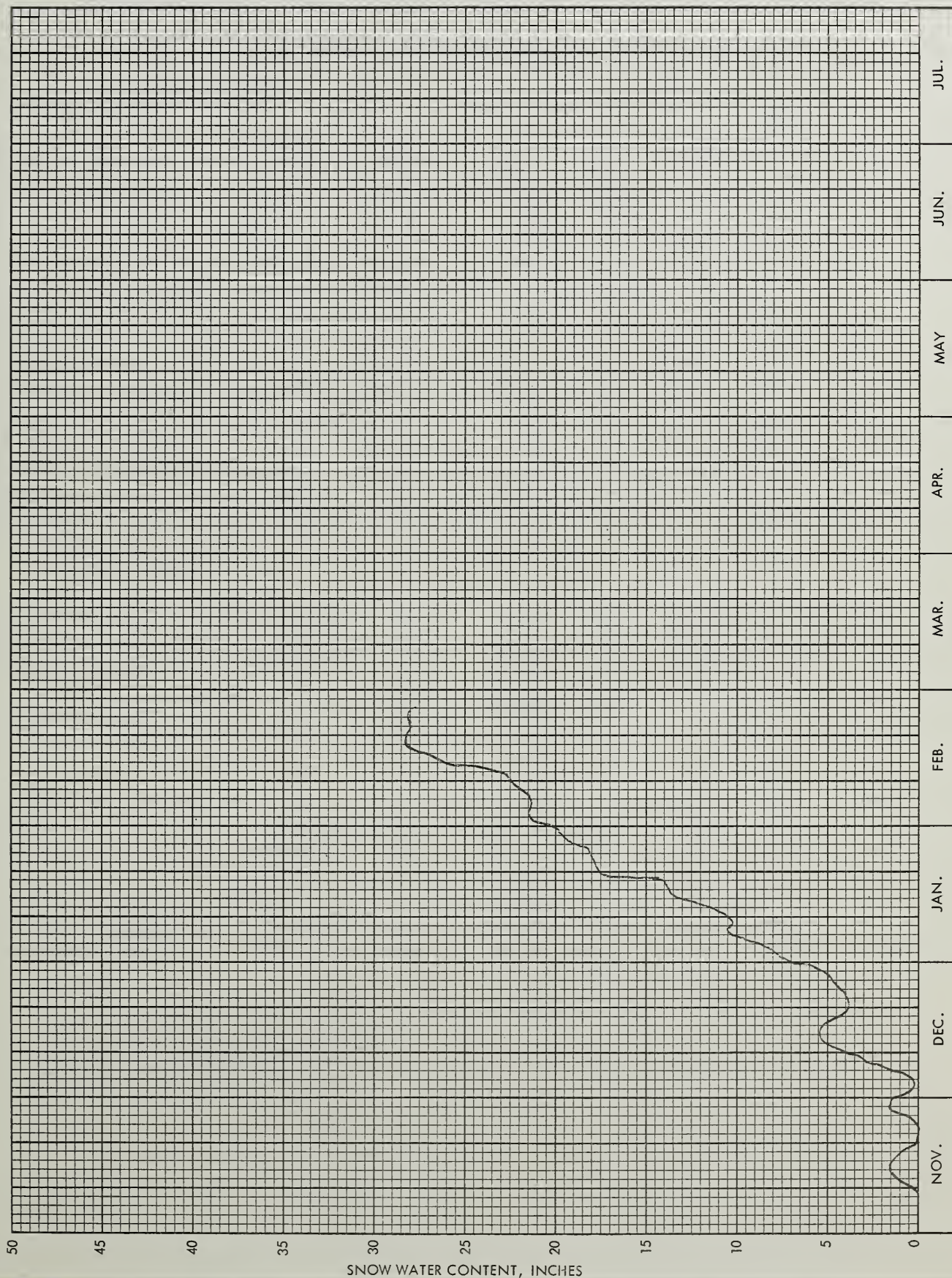
Berne-Mill Creek

Sec. 13 T. 26N R. 14E No. 21B41SP Drainage: Wenatchee
 Lat. 47° 46' Long. 121° 01' Elev. 3170



SNOW PILLOW DATA
EBA Pillow - Snoqualmie Pass

Sec. 4 T. 22N R. 11E No. 21B33SP Drainage: Yakima
Lat. 47° 25' Long. 121° 25' Elev. 3020



SNOW DATA FEBRUARY 1 to MARCH 1, 1967

DRAINAGE BASIN and SNOW COVER	No.	Elev.	SNOW COVER MEASUREMENT					
			1967		:P a s t		R e c o r d	
			Date of Survey	Snow Depth (In.)	Water Content: (In.)	Water Content: (In.)	1948-62 Avg.	

U P P E R C O L U M B I A D R A I N A G E

PEND OREILLE RIVER

Baree Creek	15B11	5500	3/1	134	55.1	38.1	45.8	--
Baree Midway	15B16	4600	3/1	110	44.4	--	--	--
Benton Meadow	16A2	2344	2/27	10	2.9	7.7	10.1	6.5
Benton Spring	16A3	4900	2/28	55	20.6	15.9	17.3	20.2
Boyer Mountain	17A2	5250	2/24	65	22.8	21.8	28.2	25.3
Brush Creek	14A4	5000	3/1	41	13.4	10.6	13.2	12.7*
Bunchgrass Meadow	17A1	5000	Not Measured		--	--	--	--
#Chewelah	17A4	4925	2/27	40	13.2	18.8	22.8	--
Hoodo Creek	15C1	6200	3/2	132	46.1	34.6	52.3	45.3*
Lookout	15B2	5250	3/1	103	35.6	27.1	33.5	34.8*
Mosquito Ridge +	16A4A	5100	2/27	138	47.1	33.3	44.7	--
Nelson	Canada	3050	3/1	48	14.6	15.2	18.8	16.2
Schweitzer Bowl	16A6	4500	2/28	88	33.0	25.7	29.0	--
Schweitzer Ridge	16A5	6100	2/28	123	47.8	34.8	43.5	--
Smith Creek	16A1	4800	Not Measured		--	--	--	--
Winchester Creek	17A3	2970	2/24	27	7.4	11.4	14.4	13.4*

KETTLE RIVER

Barnes Creek	Canada	5300	2/27	59	21.2	19.5	22.0	17.8**
Big White Mountain	Canada	5500	2/28	63	22.0	13.2	--	--
Boulder Road	18A2	1450	2/13	7	2.4	5.6	7.3	--
			2/24	8	2.5	6.1	--	--
Butte Creek	18A3	4070	2/13	31	8.9	6.8	10.8	--
			2/24	28	7.6	8.0	11.9	--
Cabin Creek	18A8	3170	2/13	23	7.5	5.6	9.8	--
			2/24	24	6.5	6.7	10.4	--
Carmi	Canada	4100	3/1	24	5.9	4.9	9.4	--
Farron	Canada	4000	3/1	41	13.1	12.0	15.5	13.2
Goat Creek	18A4	3595	2/13	20	6.4	5.7	9.1	--
			2/24	20	5.4	6.6	8.7	--
Lower Trapping Cr.	Canada	3050	2/28	17	5.2	4.4	--	--
Monashee Pass	Canada	4500	2/27	40	14.2	13.9	15.9	13.0**

Not directly on this drainage

* Adjusted 1948-62 average

** Average for years of record

APPENDIX 2

DRAINAGE BASIN and SNOW COURSE			SNOW COVER MEASUREMENT					
			1967		:P a s t		R e c o r d	
			Date of Survey	Snow Depth (In.)	Water Content: (In.)	Water Content: :1966	Water Content 1965	(In.) 1948-62 Avg.
No.	Elev.							
<u>KETTLE RIVER (Cont.)</u>								
Old Glory Mtn.	Canada	7000	2/26	78	26.6	22.5	30.1	24.1**
Snow Caps Creek	18A5	2150	2/13	6	1.7	4.7	8.6	--
			2/24	6	1.8	4.2	7.7	--
Snow Caps Trail	18A6	2720	2/13	13	4.4	5.6	8.4	--
			2/24	14	3.9	5.5	8.6	--
Summit G. S.	18A7	4600	2/13	29	8.1	6.3	10.2	--
			2/24	27	7.4	7.2	10.0	--
Upper Trapping Cr.	Canada	5500	2/28	38	11.2	7.2	--	--
<u>COLVILLE RIVER</u>								
Baird	17A6	3215	2/28	17	4.8	7.2	10.5	--
Carlson	18A9	2885	2/23	3	0.8	5.2	7.7	--
Chewelah	17A4	4925	2/27	40	13.2	18.8	22.8	--
Stranger Mtn.	17A5	4990	2/24	24	8.0	14.2	18.0	--
Togo	18A10	3370	2/23	17	4.3	11.5	14.9	--
<u>SPOKANE RIVER</u>								
Copper Ridge	16B2	4800	3/1	74	23.4	26.0	34.1	27.8
Forty-nine Meadows	15B3	5000	2/28	83	31.0	26.2	32.3	32.1*
4th of July Summit	16B3	3100	3/1	24	7.6	11.0	9.6	11.0*
Granite Peak	15B13A	6000	2/28	123	48.2	35.4	47.6	--
Kellogg Peak +	16B5A	5560	2/27	84	28.6	28.6	31.0	--
#Lookout	15B2	5250	3/1	103	35.6	27.1	33.5	34.8*
Lost Lake	15B14A	6000	2/28	144	62.1	43.0	57.2	--
Lower Sands Creek	16B1	3400	3/1	48	15.2	17.4	22.2	19.1*
Medicine Ridge	15B4A	6150	2/28	122	45.8	35.8	50.3	--
#Mosquito Ridge +	16A4A	5110	2/27	138	47.1	33.3	44.7	--
Outlaw Creek	15B12A	3750	2/28	45	14.0	15.2	16.4	--
Roland Summit +	15B5A	5200	2/27	92	31.4	26.5	35.9	--
Sherwin	16C1	3200	2/24	40	12.0	13.4	17.2	--
Sunset +	15B9A	5600	2/27	118	40.2	33.3	40.7	--

+ Snow water equivalent estimated from aerial stadia observations

Not located directly on this drainage

* Adjusted 1948-62 average

** Average for years of record

APPENDIX 3

DRAINAGE BASIN and SNOW COURSE				SNOW COVER MEASUREMENT				
				1967		:P a s t R e c o r d		
				Date of Survey	Snow Depth (In.)	Water Content: (In.)	Water Content (In.)	1948-62 Avg.
No.	Elev.					:1966	1965	
<u>OKANOGAN RIVER</u>								
Aberdeen Lake	Canada	4300	2/28	20	5.2	7.4	7.2	6.0**
Blackwall Mtn.	Canada	6250	3/1	94	37.2	29.7	28.9	29.8**
Bouleau Creek	Canada	5000	2/27	37	11.5	--	11.6	9.7**
Brookmere	Canada	3200	2/26	33	9.6	7.8	7.6	9.6
Carrs Landing #1	Canada	2250	Not Measured		New Course			
Carrs Landing #2	Canada	3200	2/25	14	3.6	New Course		
Clark +	19A8a	7000	Late Report		--	17.1	--	--
Copper Mtn.	Canada	4300	2/26	16	5.0	5.5	--	6.1**
Enderby	Canada	6250	2/21	104	38.2	28.7	33.8	--
#Freezeout Meadows	20A2	5000	3/2	96	29.2	31.0	34.9	29.7*
Hamilton Hill	Canada	4900	2/25	53	17.4	14.2	13.4	12.7**
#Harts Pass	20A5A	6500	3/3	118	40.4	30.9	40.0	41.6*
#Horseshoe Basin +	19A5a	7000	2/26	51	17.3	15.5	11.2	--
Isintok Lake	Canada	5510	2/27	31	9.1	5.7	6.8	--
Lost Horse Mtn.	Canada	6300	2/28	33	10.1	5.1	7.1	6.2**
#Loup Loup	19A7	4650	2/27	26	7.5	7.0	8.7	--
Lower Esperon Cr.	Canada	4270	2/28	36	11.6	9.0	--	--
McCulloch	Canada	4200	2/27	25	6.7	6.0	8.1	6.4
Middle Esperon Cr.	Canada	4580	2/28	40	14.4	11.0	--	--
Missezula Mtn.	Canada	5100	3/1	34	10.1	8.7	7.5	8.9**
Mission Creek	Canada	6000	2/27	60	21.0	14.7	20.5	16.0**
Monashee Pass	Canada	4500	2/27	40	14.2	13.9	15.9	13.0**
Mount Kobau	Canada	5950	2/27	41	13.5	10.0	--	--
Muckamuck +	19A9a	6390	Late Report		--	10.8	--	--
Mutton Cr. No. 1	19A1	5700	2/27	47	16.5	11.0	11.3	13.3*
Mutton Cr. No. 2	19A4	6000	2/27	46	17.4	11.1	12.2	13.9*
New Copper Mtn.	Canada	4300	2/26	20	5.9	5.6	5.5	5.4**
New Penticton Res.	Canada	5225	Not Measured		New Course			
Nickel Plate Mtn.	Canada	6200	2/27	32	10.2	5.3	7.6	6.5**
Paysayten +	20A28a	4300	2/26	65	22.1	17.0	14.9	--
Postill Lake	Canada	4500	2/28	28	8.0	7.8	8.8	7.3**
#Quartette Lake	Canada	4000	2/21	43	10.7	--	--	--
Rusty Creek	19A3	4000	2/28	21	6.5	6.6	6.5	7.9
Salmon Meadows	19A2	4500	2/27	34	10.8	7.8	9.6	10.8*

- + Snow water equivalent estimated from aerial stadia observations
- # Not located directly on this drainage
- * Adjusted 1948-62 average
- ** Average for years of record

APPENDIX 4

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT					
			1967		:P a s t R e c o r d			
			Date of Survey	Snow Depth (In.)	Water Content: (In.)	Water Content: (In.)	Water Content (In.) 1948-62 Avg.	

OKANOGAN RIVER (Cont.)

Silver Star Mtn.	Canada	6050	2/27	77	29.5	23.5	25.0	20.2**
Starvation Mtn.	19A10a	6750	Late Report			--	14.4	--
Summerland Reservoir	Canada	4200	2/26	34	11.1	8.4	9.1	--
Touts Coulee	19A6	2845	2/28	0	0.0	4.2	4.9	--
Trout Creek	Canada	4700	3/1	30	8.1	6.4	7.9	7.0
Upper Esperon Cr.	Canada	5290	2/28	51	19.2	14.5	--	--
White Rocks Mtn.	Canada	6000	2/27	65	24.8	18.1	19.9	16.8**

METHOW RIVER

Billy Goat Pass +	20A10a	6409	2/26	99	33.7	30.0	28.2	--
#Dagger Lake	20A17	5200	Not Measured			--	--	--
Dollar Watch +	20A29a	7000	2/26	72	24.5	25.2	21.7	--
Harts Pass	20A5A	6500	3/3	118	40.4	30.9	40.0	41.6*
Horseshoe Basin +	19A5a	7000	2/26	51	17.3	15.5	11.2	--
Loup Loup	19A7	4650	2/27	26	7.5	7.0	8.7	--
#Mutton Creek No. 1	19A1	5700	2/27	47	16.5	11.0	11.3	13.3*
#Mutton Creek No. 2	19A4	6000	2/27	46	17.4	11.1	12.2	13.9*
#Rusty Creek	19A3	4000	2/28	21	6.5	6.6	6.5	7.9
#Salmon Meadows	19A2	4500	2/27	34	10.8	7.8	9.6	10.8*
War Creek Pass +	20A31a	6500	2/26	123	41.8	33.6	--	--

CHELAN LAKE BASIN

Cloudy Pass +	20A22a	6500	2/26	123	41.8	32.2	33.2	38.2*
Greenwood Flat +	20A25a	3540	Not Measured			14.7	17.0	24.5*
Little Meadows +	20A24a	5275	2/26	136	46.2	30.8	35.3	41.0*
Lyman Lake +	20A23A	5900	2/26	172	58.5	64.0	43.1	53.0*
Park Creek Flat +	20A13a	2220	2/26	88	29.9	30.8	29.4	32.0*
Park Creek Ridge +	20A12A	4600	2/26	140	47.6	35.7	36.3	--
Petersons +	20A16a	3730	2/26	111	37.7	25.2	33.5	33.3*
Rainy Pass	20A9	4780	3/3	126	43.3	28.0	36.2	39.4*
Safety Harbor +	20A30A	6300	2/26	76	24.3	30.1	20.2	--
War Creek Pass +	20A31a	6500	2/26	123	41.8	33.6	--	--

+ Snow water equivalent estimated from aerial stadia observations

Not located directly on this drainage

* Adjusted 1948-62 average

** Average for years of record

APPENDIX 5

			SNOW COVER MEASUREMENT					
			1967	:P a s t R e c o r d				
DRAINAGE BASIN and SNOW COURSE	No.	Elev.	Date of Survey	Snow Depth (In.)	Water Content: (In.)	Water Content (In.)	1948-62	
						:1966	1965	Avg.
<u>ENTIAT RIVER</u>								
Brief	20B19	1600	2/25	3	2.1	7.9	8.1	--
Entiat Meadows +	20A33a	4800	2/14	129	32.2	--	--	--
			2/24	142	48.0	--	--	--
Entiat River Trail +	20A34a	3150	2/14	58	14.5	--	--	--
			2/24	52	17.6	23.1	--	--
Fox Camp +	20A36a	6510	2/14	146	36.5	New Aerial Marker		
			2/24	146	49.3			
Pope Ridge	20B20	4300	2/13	54	13.5	--	--	--
			2/28	47	16.0	15.5	--	--
Pugh Ridge +	20A32a	6400	2/14	85	21.2	--	--	--
			2/24	79	26.7	24.1	--	--
Snow Brushy +	20A35a	3850	2/14	111	27.8	--	--	--
			2/24	105	35.5	33.6	--	--
Tommy Creek +	20B21a	5300	2/14	84	21.0	--	--	--
			2/24	76	25.7	24.1	--	--
<u>WENATCHEE RIVER</u>								
Berne-Mill Creek	21B23	2925	2/15	77	23.9	21.3	26.5	--
			2/27	66	23.6	22.6	25.5	--
Berne-Mill Creek New	21B41SP	3240	2/27	60	22.6	--	--	--
Blewett Pass No. 2	20B2	4270	2/26	34	11.0	15.6	17.3	16.3
Chiwaukum G. S.	20B16	1810	2/15	24	7.3	10.4	14.0	--
			2/27	24	7.4	11.5	14.0	--
#Fish Lake	21B4	3371	3/2	83	29.4	27.0	35.8	35.1*
Lake Wenatchee	20B5	1970	2/15	35	10.2	13.1	16.6	--
			2/27	33	11.1	14.3	17.1	--
Leavenworth R. S.	20B17	1127	2/13	0	0.0	8.4	7.3	--
			2/28	0	0.0	6.5	5.0	--
#Lyman Lake +	20A23A	5900	2/26	172	58.5	64.0	43.1	53.0*
Merritt	20B18	2140	2/15	31	9.3	14.4	19.2	--
			2/27	27	9.4	16.1	16.8	--
Stevens Pass	21B1	4070	2/15	150	46.6	38.2	52.1	41.4*
			2/27	134	50.3	41.4	55.9	45.9

+ Snow water equivalent estimated from aerial stadia observations

Not located directly on this drainage

* Adjusted 1948-62 average

** Average for years of record

APPENDIX 6

DRAINAGE BASIN and SNOW COURSE			SNOW COVER MEASUREMENT					
			Date of Survey	Snow Depth (In.)	Water Content: (In.)	: P a s t R e c o r d		
						Water Content (In.)	1948-62	
No.	Elev.					:1966	1965	Avg.
<u>SQUILCHUCK CREEK</u>								
Beehive Springs	20B3	4400	2/27	6	2.6	9.6	10.0	7.0*
Scout-A-Vista	20B4	3400	2/27	5	2.6	8.7	9.5	8.0*
<u>STEMILT CREEK</u>								
Jump-Off	20B8	4450	2/27	7	2.4	10.6	9.6	--
Stemilt Slide	20B6	5000	2/27	25	8.3	14.5	14.3	--
Upper Wheeler	20B7	4400	2/27	5	2.6	10.9	10.9	--
<u>YAKIMA RIVER</u>								
#Ahtanum R. S.	21C11	3100	2/24	0	0.0	9.2	7.9	7.3*
Big Boulder Creek	21B9	3200	3/2	34	16.9	17.8	25.0	20.7*
#Blewett Pass No. 2	20B2	4270	2/26	34	11.0	15.6	17.3	16.3
Bumping Lake	21C8	3450	12/15	14	3.3	--	3.8	--
			12/29	12	3.8	6.4	9.9	7.8
			1/12	18	4.7	14.2	15.4	--
			1/29	30	10.2	14.4	17.9	13.5
			2/14	42	11.4	17.4	19.2	--
#Cayuse Pass	21C6	5300	2/28	35	12.1	16.1	17.6	17.4
			2/24	199	77.7	65.9	74.0	79.0*
			3/1	39	11.8	--	15.7	--
			3/1	0	0.0	--	8.1	--
			3/2	72	29.6	New Course		
Clockum Pass	20B9	5370	3/1	39	11.8	--	15.7	--
Cooke Creek	20B10	4123	3/1	0	0.0	--	8.1	--
Cooper Pass	21B36	3300	3/2	72	29.6	New Course		
#Corral Pass	21C13	6000	2/24	107	39.2	30.5	--	39.7*
Fish Lake	21B4	3371	3/2	83	29.4	27.0	35.8	35.1*
Green Lake	21C10	6000	2/24	89	33.2	28.8	31.0	27.3*
Grouse Camp	20B11	5385	2/28	36	11.3	18.6	20.9	--
High Creek	20B12	2930	2/28	0	0.0	7.1	6.9	--
Hyak	21B34	2600	3/1	42	17.9	New Course		
Kachess Dam	21B38	2200	3/1	9	5.2	New Course		
Kachess Peninsula	21B37	2280	3/1	33	15.0	New Course		
Lake Cle Elum	21B14M	2200	2/9	0	0.0	--	--	--
			2/15	--	--	11.6	12.1	--
			2/19	9	2.2	--	--	--
			2/26	6	1.7	12.6	11.5	11.0

Not directly on this drainage

* Adjusted 1948-62 average

APPENDIX 7

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT					
			Date of Survey	1967 Snow Depth (In.)	Water Content: (In.)	: P a s t R e c o r d		
						Water Content (In.) 1948-62 Avg.		
						:1966	1965	
<u>YAKIMA RIVER (Cont.)</u>								
Manashtash	20C1	3935	2/28	0	0.0	5.1	0.0	--
Morgan Creek	21B40	2320	3/1	0	0.0	New Course		
Morse Lake	21C17	5400	3/2	150	59.2	42.8	53.9	49.3*
Nanum	20B13	3875	2/28	16	5.0	13.2	12.4	--
#Olallie Meadows	21B2	3625	2/27	94	38.8	42.0	56.7	44.6
Salmon La Sac	21B39	2340	3/1	41	16.0	New Course		
#Satus Pass	20D1	4030	2/27	13	4.6	15.3	11.8	--
Snoqualmie Pass	21B33SP	3020	3/1	64	26.4	New Course		
#Stampede Pass	21B10	3000	2/16	99	42.1	25.2	43.1	39.5*
			2/21	125	44.6	--	--	--
			2/28	112	39.9	29.0	44.6	43.4*
Trail Creek	20B14	3360	3/1	0	0.0	5.7	0.0	--
Tunnel Avenue	21B8	2450	2/10	31	9.7	--	--	--
			2/15	--	--	22.6	27.5	--
			2/20	47	14.3	--	--	--
			2/28	41	14.2	21.6	25.8	25.1
Walters Flat	20B15	3360	2/28	0	0.0	9.4	8.7	--
White Pass (E. Side)	21C28	4500	2/15	67	20.2	19.9	25.2	--
			2/27	60	20.9	21.5	26.0	21.5*
White Pass (Leech L.)	21C27	4500	2/15	81	25.5	23.7	28.8	--
			2/27	70	24.9	29.9	32.0	--
<u>AHTANUM CREEK</u>								
Ahtanum R. S.	21C11	3100	2/24	0	0.0	9.2	7.9	7.3*
Green Lake	21C10	6000	2/24	89	33.2	28.8	31.0	27.3*

LOWER COLUMBIA DRAINAGEASOTIN CREEK

Spruce Springs	17C4	5700	2/27	49	18.2	20.3	32.9	--
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MILL CREEK

Homestead	17C1	4030	2/28	17	6.1	13.4	9.6	9.1*
-----------	------	------	------	----	-----	------	-----	------

Not located directly on this drainage

* Adjusted 1948-62 average

APPENDIX 8

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT					
			Date of Survey	Snow Depth (In.)	Water Content: (In.)	: P a s t R e c o r d		
						Water Content (In.)		
						1948-62		
						1966	1965	Avg.
<u>MILL CREEK (Cont.)</u>								
Martin Springs	17C2	4400	2/28	30	9.8	16.8	15.9	14.2*
Walla Walla Diversion	18D13	2400	2/26	0	0.0	7.0	0.0	2.8*
<u>KLICKITAT RIVER</u>								
Satus Pass	20D1	4030	2/27	13	4.6	15.3	11.8	--
West Fork Cabin	21C15	3000	2/28	2	0.6	15.9	15.9	--
<u>WHITE SALMON RIVER</u>								
Cultus Creek	21C12	4000	Not Measured			48.4	48.2	42.8*
#Surprise Lakes	21C13A	4250	3/4	116	44.0	49.6	54.0	44.8*
<u>WIND RIVER</u>								
Old Man Pass	21D19	3100	3/3	43	16.1	33.7	29.6	13.7*
<u>LEWIS RIVER</u>								
Blue Lake +	21C22a	4800	3/3	197	73.0	67.4	74.3	--
Bob's Trail	21C21	2200	3/1	38	16.4	25.0	22.3	--
Calamity Ridge +	22D1a	2500	3/4	8	3.0	16.4	4.4	--
Council Pass +	21C18a	4200	3/3	106	40.3	43.0	43.9	34.2*
#Cultus Creek	21C12	4000	Not Measured			48.4	48.2	42.8
Divide Meadow +	21C29a	5600	3/3	138	49.6	45.5	54.3	--
Grand Meadow	21C25	3500	2/27	60	23.5	30.4	33.6	--
Lone Pine Shelter	21C26	3800	2/27	99	38.8	44.7	41.8	--
Marble Mountain +	22C3a	3200	Not Measured			45.9	32.6	--
#Mosquito Meadows	21C19	4100	2/27	103	38.9	45.8	47.2	36.2*
New Muddy River	22C6	1400	2/27	0	0.0	20.1	15.2	--
Old Man Pass	21D19	3100	3/3	43	16.1	33.7	29.6	13.7*
Plains of Abraham +	22C1a	4400	3/3	160	59.2	--	58.4	60.6*
Smith Creek Road	22C4	2100	2/27	35	15.5	29.4	28.6	--
Spencer Meadow +	21C20a	3400	3/3	64	24.3	41.4	23.8	20.2*

- + Snow water equivalent estimated from aerial stadia observations
- # Not located directly on this drainage
- * Adjusted 1948-62 average

APPENDIX 9

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT					
			1967		:P a s t R e c o r d			
			Date of Survey	Snow Depth (In.)	Water Content: (In.)	Water Content: :1966	Water Content 1965	Water Content (In.) 1948-62 Avg.

LEWIS RIVER (Cont.)

Surprise Lakes	21C13A	4250	3/4	116	44.0	45.7	54.0	44.8*
Table Mountain +	21C24a	4200	3/3	117	44.5	44.5	48.0	--
Timbered Peak +	21D18a	3000	3/4	46	17.5	36.9	18.0	--

COWLITZ RIVER

Cayuse Pass	21C6	5300	2/24	199	77.7	65.9	74.0	79.0*
Mosquito Meadows	21C19	4100	2/27	103	38.9	45.8	47.2	36.2*
Ohanapecosh	21C32	2200	2/28	37	14.4	22.0	23.6	--
Packwood Lake	21C31	2870	3/3	35	13.2	17.8	18.3	--
Pigtail Peak	21C33	5900	2/17	149	52.4	43.3	76.5	--
			2/27	149	59.8	49.4	78.6	--
Plains of Abraham +	22C1a	4400	3/3	160	59.2	--	58.4	60.6*
Potato Hill	21C14	4500	2/27	77	28.4	33.8	33.8	26.1*
#White Pass (E. Side)	21C28	4500	2/15	67	20.2	19.9	25.2	--
			2/27	60	20.9	21.5	26.0	21.5*
#White Pass (Leech L.)	21C27	4500	2/15	81	25.5	23.7	28.8	--
			2/27	70	24.9	29.9	32.0	--
Willame Creek	21C30	3250	2/28	81	30.9	31.3	35.9	--

P U G E T S O U N D D R A I N A G ENISQUALLY RIVER

Ghost Forest	21C4	4550	2/27	119	47.2	39.7	43.8	40.2*
Longmire	21C3	2760	2/27	37	13.2	12.8	16.5	8.1*
New Paradise Park	21C35	5500	2/27	171	71.2	50.6	--	--
Stem Glade	21C1	5050	2/27	181	70.6	50.6	67.1	63.8*

WHITE RIVER

#Cayuse Pass	21C6	5300	2/24	199	77.7	65.9	74.0	79.0*
Corral Pass	21C13	6000	2/24	107	39.2	30.5	--	39.7*
#Morse Lake	21C17	5400	3/2	150	59.2	42.8	53.9	49.3*
White River Campground	21C34	4000	2/21	74	24.7	26.7	--	--

+ Snow water equivalent estimated from aerial stadia observations

Not located directly on this drainage

* Adjusted 1948-62 average

APPENDIX 10

DRAINAGE BASIN and SNOW COURSE			SNOW COVER MEASUREMENT					
			Date of Survey	1967 Snow Depth (In.)	Water Content: (In.)	: P a s t R e c o r d		
						Water	Content (In.)	1948-62
No.	Elev.					:1966	1965	Avg.
<u>GREEN RIVER</u>								
Airstrip	21B24	1800	2/24	0	0.0	8.7	7.0	--
Charley Creek	21B25	1200	2/24	0	0.0	1.3	0.0	--
Grass Mtn. No. 1	21B26	4000	2/24	49	18.6	30.2	25.2	--
Grass Mtn. No. 2	21B27	2900	2/24	38	14.0	29.2	22.8	--
Grass Mtn. No. 3	21B28	2100	2/24	0	0.0	7.7	1.5	--
Lester Creek	21B29	3100	2/24	56	19.2	24.8	25.8	--
Sawmill Ridge	21B31	4700	2/24	102	37.2	32.2	45.8	--
Stampede Pass	21B10	3000	2/16	99	42.1	25.2	43.1	39.5*
			2/21	125	44.6	--	--	--
			2/28	112	39.9	29.0	44.6	43.4*
Twin Camp	21B30	4100	2/24	61	23.7	23.1	30.8	--
<u>CEDAR RIVER</u>								
City Cabin	21B3	2390	2/24	33	11.9	20.6	26.3	16.9*
Mt. Gardner	21B21	3300	Not Measured			24.2	24.3	--
Mt. Lindsay	21B16	2500	2/27	30	10.1	22.8	23.8	13.2*
Mt. Washington	21B15	3000	2/27	15	4.5	19.4	7.6	7.1*
Rex River	21B17	2400	2/24	22	7.7	21.4	--	14.3*
S. F. Cedar	21B6	3000	2/24	46	16.9	24.4	27.6	23.5*
Tinkham Creek	21B20	3400	2/24	38	12.9	26.1	30.1	--
<u>SNOQUALMIE RIVER</u>								
Bandera Air Strip	21B32	1635	2/27	0	0.0	New Course		
#Lake Elizabeth	21B19	2900	2/28	93	39.2	47.1	47.7	--
Olallie Meadows	21B2	3625	2/27	94	38.8	42.0	56.7	44.6
S. F. Tolt	21B18	1900	3/1	5	2.1	6.1	0.0	--
<u>SKYKOMISH RIVER</u>								
Lake Elizabeth	21B19	2900	2/28	93	39.2	47.1	47.7	--
#Stevens Pass	21B1	4070	2/15	150	46.6	38.2	52.1	41.4*
			2/27	134	50.3	41.4	55.9	45.9

Not directly on this drainage

* Adjusted 1948-62 average

+ Snow water equivalent estimated from aerial stadia observations

APPENDIX 11

			SNOW COVER MEASUREMENT					
			1967	:P a s t R e c o r d				
DRAINAGE BASIN			Date	Snow	Water	: Water Content (In.)		
and			of	Depth	Content:	1948-62		
SNOW COURSE	No.	Elev.	Survey	(In.)	:1966	1965	Avg.	
<u>SKAGIT RIVER</u>								
Beaver Creek Trail	21A4	2200	3/2	39	14.0	16.2	17.3	16.0*
Beaver Pass	21A1	3680	3/1	86	31.2	27.7	27.6	32.7*
#Cloudy Pass +	20A22a	6500	2/26	123	41.8	32.2	33.2	38.2*
Devils Park	20A4	5900	3/3	132	47.8	31.4	39.8	41.3*
Freezeout Cr. Trail	20A1	3500	3/2	42	12.6	10.9	14.1	13.7*
Freezeout Meadows	20A2	5000	3/2	96	29.2	31.0	34.9	29.7*
#Harts Pass	20A5A	6500	3/3	118	40.4	30.9	40.0	41.6*
Klesilkwa	Canada	3700	3/1	52	15.5	12.1	13.2	12.5*
Lake Hozomeen	21A2	2600	3/2	22	6.1	10.8	10.4	11.0*
#Lyman Lake +	20A23A	5900	2/26	172	58.5	64.0	43.1	53.0*
Meadow Cabins	20A8	1900	3/2	20	6.0	6.7	15.1	8.0*
New Tashme	Canada	2500	3/1	34	10.1	13.1	15.8	11.3
Quartette Lake	Canada	4000	2/21	43	10.7	--	--	--
#Rainy Pass	20A9	4780	3/3	126	43.3	28.0	36.2	39.4*
Thunder Basin	20A7	4200	3/2	71	21.8	16.8	22.8	22.9*
<u>BAKER RIVER</u>								
Dock Butte +	21A11A	3800	2/15	Not Measured		60.8	63.0	--
			2/27	185	74.0	71.8	64.8	--
Easy Pass +	21A7A	5200	2/15	Not Measured		68.0	72.6	--
			2/27	205	82.0	75.7	79.8	--
Jasper Pass +	21A6A	5400	2/15	Not Measured		67.3	79.0	--
			2/27	252	100.8	79.6	82.0	--
Komo Kulshan	21A17	800	Not Measured					
Marten Lake +	21A9A	3600	2/27	223	89.2	78.0	80.8	--
Mount Blum +	21A18a	5800	2/15	Not Measured		65.7	83.2	--
			2/27	198	79.2	79.2	83.2	--
#Panorama	21A5	4300	2/13	213	75.7	69.5	70.9	--
			2/25	205	85.7	69.4	61.0	--
Rocky Creek +	21A12A	2100	2/15	Not Measured		35.2	31.6	--
			2/27	86	34.4	38.4	35.0	--
Schreibers Meadow +	21A10A	3400	2/15	Not Measured		57.0	51.7	--
			2/27	161	64.4	63.6	58.4	--

+ Snow water equivalent estimated from aerial stadia observation

* Adjusted 1948-62 average

Not located directly on this drainage

APPENDIX 12

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT						
			Date of Survey	1967	:P a s t R e c o r d				
				Snow	Water	: Water Content (In.)		1948-62 Avg.	
				Depth (In.)	Content: (In.)	:1966	1965		
<u>BAKER RIVER (Cont.)</u>									
S. F. Thunder Cr.	21A14A	2200	2/15	Not Measured	4.0	4.8	--		
			2/27	6	2.4	7.2	9.9	--	
Watson Lakes +	21A8A	4500	2/15	Not Measured	57.0	63.0	--		
			2/27	175	70.0	67.9	64.0	--	
<u>NOOKSACK RIVER</u>									
Bald Mountain +	21A19a	4400	2/26	144	50.4	New Course			
Canyon +	21A20a	5100	2/26	155	54.2	New Course			
Glacier Creek	21A23	3700	2/26	61	21.2	New Course			
Panorama	21A5	4300	2/13	213	75.7	69.5	70.9	--	
			2/25	205	85.7	69.4	61.0	--	
Twin Lakes +	21A21a	5200	2/26	195	68.2	New Course			
<u>O L Y M P I C P E N I N S U L A</u>									
<u>DUNGENESS RIVER</u>									
Deer Park	23B4	5200	2/27	68	24.4	22.7	19.7	24.5*	
<u>MORSE CREEK</u>									
Deer Park G. S.	23B13	4850	2/27	44	15.3	16.6	15.6	--	
Morse Creek	23B12	5425	2/27	132	49.1	41.3	38.7	--	
<u>ELWHA RIVER</u>									
Hurricane	23B3	4500	2/24	79	27.0	20.9	21.8	25.1*	
<u>SKOKOMISH RIVER</u>									
Black & White	23B7	4200	2/24	116	42.2	41.1	33.2	--	
Black & White Lakes	23B6	4700	2/24	143	59.2	57.8	44.9	--	
Four Streams	23B10	3000	2/24	73	28.7	30.4	25.7	--	
Home Sweet Home	23B5	5200	2/24	186	73.8	64.8	55.7	--	
Sundown Pass	23B8	3900	2/24	142	58.9	57.9	53.9	--	

* Adjusted 1948-62 averages

+ Snow water equivalent estimated from aerial stadia observations

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Conservation
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
Weather Bureau
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Walla Walla
City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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